

structure, “22 years later, what future of the south door of Expo’98, Lisbon (1994-1998)” discusses the challenges of designing one of the entrances to the Expo’98 exhibition, as undertaken by the team led by the late Manuel Graça Dias and Egas Dias Vieira. Written by Dias Vieira himself, together with Alexandra Saraiva and Inês Campos, the article explains the architectural and technological strategies used to transform an industrial construction of important effect into a building fit to fulfil a symbolic and functional role as access to the international event. Moreover, the paper ventures into questioning about the fate of the striking structure, now sadly unused.

As the name implies, “A new waterfront for Vila do Conde – the Polis Program and its technological aspects” is concerned with an area of broader dimensions. Here, Sara Mafalda Oliveira displays a plan undertaken by Álvaro Siza for Vila do Conde, a coastal town in Northern Portugal. Her first concern is to frame Siza’s work in the general outline of the Polis Program, either in its physical and political aspects. As one of the Polis ambitions was to enhance riverside or maritime fronts, Sara Oliveira argues that these goals immediately set technological challenges related with the proximity of water. Some of these challenges are judiciously explained in the paper, using Siza’s work as study case.

For the period that falls within the scope of the conference, the papers here presented form two different patterns. These were not anticipated by the co-chairs but both are complementary and relevant in many ways. The first pattern is related with the importance of leading figures of Portuguese architecture and civil engineering in the advanced use of building technologies. The second is the relevant role of Portuguese academic institutions and its researchers in the development of groundbreaking solutions, useful either for the planning or the construction of new facilities.

In short, even considering that the established goals for this technical session were not completely fulfilled, it is our opinion that the papers presented were, in its diversity, both in scale and technologically, interesting examples of the application of innovative solutions in Portugal along the 1990s and 2000s.

96 22 years later, what is the future for the South Door of Expo ‘98?

Lisbon (1994-1998)

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ABSTRACT

This project combined the desire for representation and symbolism characteristic at the entrance to Expo ‘98 with the recovery of an industrial structure of significant impact. With the creation of a support building at the base, simulating a shipwreck, it was possible to fulfil the requirements and integrate the Cracking Tower into the entrance. With this, the Cracking Tower has remained an effective memory of the area, and it should also become a privileged viewpoint of the entire new space open to the north.

In the 22 years after Expo ‘98, little use has been made of the building, and it has remained closed and without public access. We are currently witnessing an attempt to return this space to the community; however, it depends on the assessment requested from the LNEC on the structural integrity of the edifice.

This article aims to recap the design process and construction of this industrial structure as it was integrated into a building.

The goal is to return it to the public and, preferably, allow access to the top of the Tower. It is a striking building in the local landscape.

Keywords: Expo ‘98, Industrial structure, Contemporânea, future.

1. Introduction

In the south of Parque das Nações, there was a refinery tower, a legacy of the industrial past that existed in that place before Expo '98. Designed by a German engineering firm, it was built in 1939 as Torre TCC (Thermo for Catalytic Cracking), also known as Sacor's chimney and the Galp Tower. It was part of the Cabo Ruivo Refinery, playing an essential role in the manufacture of products from the distillation of crude oil, processing them into gasoline, diesel, and other derivatives. The transformation of this Tower for Expo '98 was intended to leave a mark of the industrial past in the territory of the future. Being the only structure that remained, it was integrated into the Exhibition in conjunction with Porta do Mar.

The recovery project was led by the team of architects, Manuel Graça Dias and Egas José Vieira who, in addition to adapting the structure by reducing its size, at Porta do Recinto, created a viewpoint space reserved for elite guests so that during the event they could observe the magnificent view over the whole Eastern part of Lisbon and Mar da Palha. For this purpose, an elevator was attached to the structure, giving access to a panoramic platform. (Moura 2019)

This project combined the desire for representation and symbolism characteristic at the entrance to Expo '98 with the recovery of an industrial structure of significant impact. With the creation of a support building at the base, simulating a shipwreck, it was possible to fulfil the program and integrate the Cracking Tower. With this, it remained as a tribute to the former industrial site. At its base were built some spaces that had different uses during Expo '98.

In the 22 years after Expo '98, little use has been made of the space, and it has remained closed and without public access. The CDS-PP Municipal Group proposed to the Lisbon Municipal Assembly, in its session on 12th February, a recommendation to the Lisbon City Council that (Moura 2019) promotes a study by the LNEC to evaluate the stability of the structure to gauge the possibility of:

- a) Resuming the use of a viewpoint at the top of the Tower, after the necessary adaptation and conservation works for this purpose;
- b) Installing, in the existing spaces at the base, support spaces (ticket office, cafeteria, sanitary facilities, among others);
- c) Promoting an exhibition in the entrance area that summarizes the structure's past;
- d) Integrating this eastern viewpoint into tourist routes, creating an anchor in the south zone of the City and linked to the project of the Interpretative Centre of Parque das Nações.

The objective is to return this striking building from a former age to the population and, preferably, allow access to the Tower's top. The built heritage of the City, in particular, that which symbolizes a time in the eastern zone and an urban conversion, recognized as an excellent international example, should, as far as possible, be occupied by its people and by those who visit us.

2. From the industrial past as memory in the future territory

Cabo Ruivo, in Lisbon, is on the Tagus river front, between Martinha and Beirolas. In this area, the Sacor/ Petrogal refinery was installed, along with other large industries. There was also a jetty of 300 meters jutting into the river to serve the oil tankers that supplied the refinery.

With the construction of Expo '98, currently Parque das Nações, this eastern part of Lisbon was rehabilitated as the Cabo Ruivo area was involved as part of an environmental program. The Cracking Tower was in the proposal for the South Gate of the Lisbon International Exhibition of 1998, with the theme "The oceans: a heritage for the future."



Fig. 1 - Sacor Refinery, Cabo Ruivo, Lisbon, 1940. (Leite, 2011)

The Cracking Tower is currently located almost a kilometre from the Tagus Rivera, a fact that can be explained by earthworks and the requalification of the land around it. Until the 18th century, the river reached its base. Associated with its location, in the area where the river begins to widen north-south to east-west, this Tower was a renowned landmark for anyone sailing the Mar da Palha.

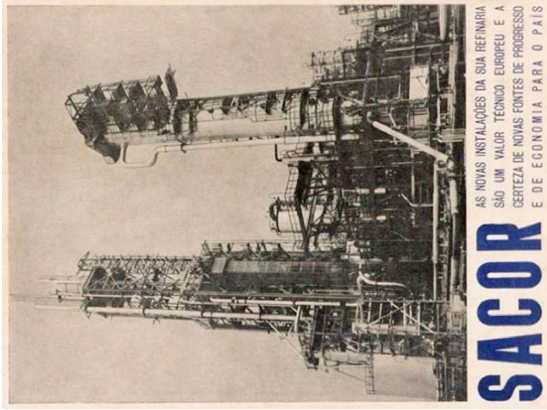


Fig. 2 e 3 – The Cracking Tower, Lisbon, 1955. (Leite, 2011)

It was founded on 28th July 1937 by a Romanian living in France, Martin Saim. The Sacor company chose Cabo Ruivo, an industrial area of the capital, to install its refinery, which was officially opened on 11th November 1940. It produced Gasoline, Diesel, LPG (liquefied petroleum gas), Fuel oil, Naffta, Jet fuel (aircraft fuel), Bitumen (for asphalt and insulation), and Sulfur (for pharmaceuticals, agriculture, and pulp bleaching). It had the first car fuelling pumps. (Santos, 2014)

This refinery was expanded throughout its existence until the Sines refinery started operating in 1979, which led to its decommissioning. It operated until 1995, after which the refinery was decommissioned and dismantled.

Vasco Graça Moura e António Mega Ferreira, within the Discoveries Commission's scope, proposed to the Portuguese Government in 1989 the challenge of Portugal to organize a World Exhibition in Lisbon.

The idea of Portugal's candidacy for the organization of a World Exhibition was accepted by the Government, and the Promotion Commission for the Lisbon World Exhibition, after carrying out several studies for its location – all of them on the riverside – chose the eastern part of Lisbon. The Bureau International des Expositions for the Exhibition proposed site was to be around Docas dos Olivais – where the Petrogal refinery (formerly Sacor), container depot, and the former central Slaughterhouse of Lisbon, among other industrial spaces, were located. The application of Lisbon won in 1992 in Toronto.

In 1995, at Parque Expo, António Mega Ferreira, at the start of refinery dismantling works, invited Manuel Graça Dias and Egas José Vieira to recover the Cracking Tower of the former Sacor refinery, with the desire to keep it as a memory of the old industrial space.

Architecturally, the object – the Cracking Tower – to be integrated with new uses and meanings (bar and viewpoint on the roof) had the shape of an almost “obelisk” after being cut off from its interconnections to the old industrial mass. It seemed too slender, out of place, depressingly lonely and abandoned, decontextualized from what it had been – a useful object of industrial beauty – without knowing what it could be.

3. The south door of Expo'98

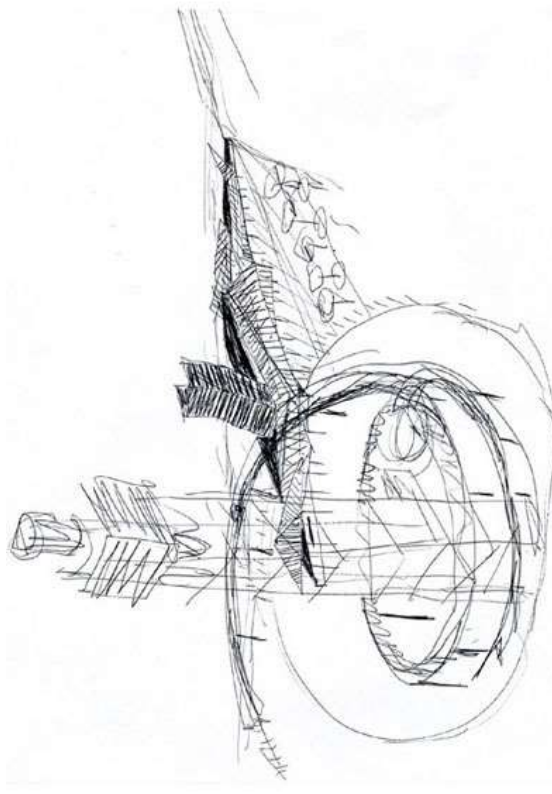


Fig. 4 – The south door of Expo'98, drawing by architects Manuel Graça Dias and Egas José Vieira (Graça Dias + Egas Vieira, 1994-1998)

With the construction of the Porta Sul came the desire to create a significant entry point for Expo '98 while giving significance to an industrial structure of historical importance. The recovery of Petrogal's old Cracking Tower would pay homage to a former industrial era while at the same time provide a privileged viewpoint of the whole new area open to the north.

Once the proposal to include the Cracking Tower was made, questions were raised. Those responsible for the initial constructions asked Graça Dias and Egas Vieira, if

they could tell them where to cut it. They were very alarmed because they still did not know the structure of the Tower well enough to decide. Despite that, the team decided what was to be removed, not least because they had already started the demolitions. The team encountered a distinct element, like an obelisk in the middle of nowhere, which made the architects feel alarmed because of the lack of a base to balance the entire structure (as we can see in Figure 2).

The team started to make sketches of the Tower to understand how they could fill this emptiness and restore the existing base to balance the object and add features to relate to the past. To begin with, they did not know what the program was, and they just knew it was to be the south entrance. With some conversations, Manuel Salgado and Vassalo Rosa concluded that the entrance would have to have support spaces for groups, guides, door employees, and a space for a bank as there were not many ATMs in that locality.

The idea was to recreate an element that looked like a train standing next to the Tower. When they realized that an avenue was going to be constructed in the future, the idea was to make a route that wound around the Tower and passed over that avenue. The main idea was that the support building would give shape to the Tower. At this stage, they still did not quite know what the walkway would be like, but they had the guidelines for two avenues that were designed in the project for the area. In the first phase, they tried to understand the areas destined for the support service and the space that would occupy the Tower's walkway and the avenue.

The project was developed starting from the central and diagonal avenues, supporting the Urbanization Plan (PU) of Manuel Salgado, of not being centred and symmetrical with the sidewalks and also the South Detailed Plan (PP3) developed by Troufa Real.

The team tried to develop a narrative that would support the Cracking Tower, retaining part of the old body and wrapping it with a walkway.

The walkway has two moments: the first level of inflexion was raised so that as it wrapped itself around the tower, it passed over the avenue, and ended with standard stairs and, in time, an elevator; and the second allowed to climb around the tower which ended at the first viewpoint, on top of the first cylinder.

To achieve this overlap of the walkway without a pillar from top to bottom in the overlapping area, project engineer Tiago Abecassis used a larger span, and the pillars were positioned in a very simple way that solved the problem and allowed them to be slender in their design.

The idea of the walkway was to make it appear contradictory, almost fragile,

made of glass, radiating inner light, marking the movement, designed with a metallic structure with two compounds, which made the bridge more coherent than if they had used reinforced concrete.

Thus, the loop of white fluorescent light draws, through its practical use, a pedestrian bridge in opaline glass, making it a doubly symbolic moment: arch, door - during and after the Exhibition - but also a foundation for the Tower. The passage is a pretext, a shroud to the Tower that brings it closer as one that observes it, a climb that gradually gains quota and sees a bit of the city lit up in the distance.

The walkway was made of a radial structure, and the glass was cut small in size to make the curves and give the effect of an almost perfect angle. On top of the cylinder, a new floor was created where the walkway to the lowest viewpoint began. The team had to increase the elevation and the existing stairs that did not reach the tower's top where the main view had to be. In the beginning, there was only a back-breaking staircase to reach the top. The Coffee shop proposed under the cylinder at the top of the tower - designed with the dimensions of the existing structure between two crosses of the structure above and below the coffee shop, extended with the same design of the storage cylinder, to give the idea that there was no intervention.

The Coffee shop box was made of glass with a few brise-soleil to control the sun on the south side. The top cylinder had an elevator that led to the WC, and the bottom cylinder was the kitchen, which had an elevating dishwasher.

On the ground floor of the tower, at the base of the cylinder that housed the first viewpoint, the architects proposed to use the space as a support area.

Proposing around the counter that surrounded the cylinder with a smaller dimension, they took advantage of having concrete pillars that defined the Expo's access gates.

They took advantage of the elevated base to respond to the program and created an arm facing the cylinder with the same image as the elevator, with rooms and a toilet for security guards, a garbage house, and a security cabin.

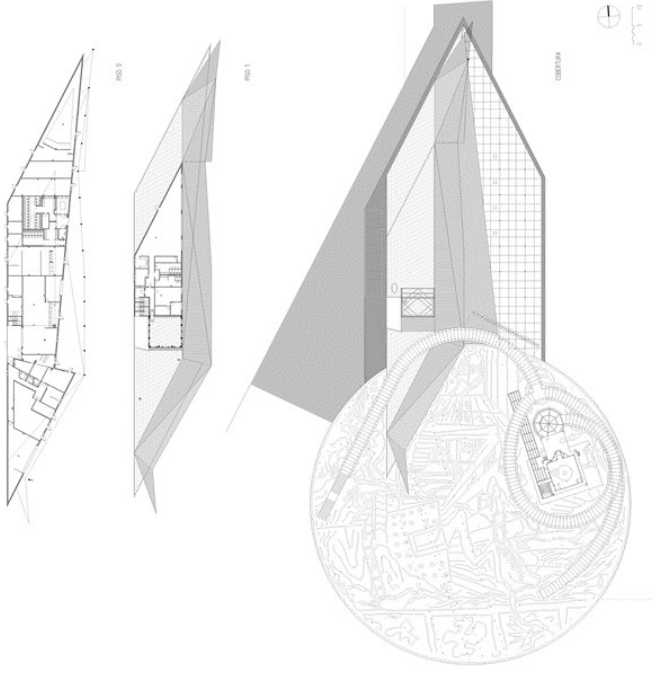


Fig. 5 - The south door of Expo '98, architectural plans by architects Manuel Graça Dias and Egas José Vieira (Graça Dias + Egas Vieira, 1994-1998)

The initial shape of the main building of the door still did not have the ideal design, so it was redesigned according to the visual relations of the avenues, and conceptually, they tried to compare it to a stranded boat, refining the shape according to some alignments, circulations and functions spaces. They proposed some blades to shade the support building.

The door construction program was divided into two parts, the outer part of the Expo, which was reserved for the bank branch, points that connected to the outside for ticket sales and information points, and the inner part of the Expo; inside, there was a service area with a bathroom for visitors, a support room for groups to receive information and surveillance services and security rooms. Upstairs, there were changing rooms and toilets for workers. And on this floor was the tower where the name Porta do Mar was located. The building was built in masonry with an inverted roof covered with salmon-coloured concrete slabs.



Fig. 6 - The south door of Expo '98, model by architects Manuel Graça Dias and Egas José Vieira (photo by Graça Dias + Egas Vieira, 1994-1998)

The building contained three squares that defined the different spaces: the tower square, the door square, and the service square. The tower square was outside the Expo, the door square referred to the entrance building, and the service square was exclusive to Expo workers.

The Tower with the name initially was going to be covered with wood. First, it was going to have the name of the Port SUD, Gate SOUTH, and Puerta SUR. The

structure was to be in wood, and the letters were also to be made of wood that came out to make a 3D effect. However, at the contractor's request, the wood was replaced by metal, which was faster and more straightforward to construct, and in terms of maintenance would be simpler and more manageable. Then the name changed to Port MAR, and the words were SEA, MAR and MER.

The Graphic Designer Filipe Alarcão designed a profiled chimney with the name of Porta do Mar, Sea, Mer.



Fig. 7 - The south door of Expo '98, letter design by designer Filipe Alarcão (photo by Graça Dias + Egas Vieira, 1994-1998)

They invited Pedro Calapez to design the square's pavement. The project was carried out in basalt and built in dark grey granite and white limestone. To prepare the drawing for the work, it was necessary to make multiple grids of scans to start the more detailed work. The circle had a radius of 44 meters. Where the building existed, the floor was white to remind people of the building's existence after it was dismantled. The complete paving of the square was only accomplished in 2000.

Pedro Calapez's surface plan established a recognizable board that unifies the whole and slows down the movement of cars. It was composed of almost abstract pieces whose absolute sense could only be understood by the aerial view over the



Fig. 8 e 9 - The south door of Expo '98, pavement design by Pedro Calapez (image and photo Graça Dias + Egas Vieira, 1994-1998)

The Tower did not have the expected impact, and its use was very restricted, and it was left to those who initially planned it. Few people went up to the lookout; the Coffee shop ended up not being built because the work at height was costly, and the work was delayed.

During the exhibition period, the elevator ended up being acquired by Galp, being used only by this brand's guests. After the Expo, when the support building was dismantled, the Expo administration decided that the door's name should remain, creating a foundation, like a memory from the past.

We also await the viewpoint's opening at the top, a significant pretext for the strategic operation that resulted from this proposal.

4. The permanence and life of the South door of Expo '98

After major World Exhibitions, there are usually difficulties in reconvertng spaces, in guaranteeing a new life for the various buildings and structures constructed. There are examples worth mentioning, such as was the case with the Seville Exhibition in 1992, where the central space was converted into an amusement park for the City.

Parque Expo intended to return all the space to the City and transform it into a new area of expansion for the City, taking advantage of most buildings and structures. Converting some (FIL - Feira Internacional de Lisboa, Casino Lisboa) and using others (Lisbon Oceanarium, Knowledge Museum, Teatro Camões, Alice Arena, The Nations Park Gondola Lift, Vasco da Gama Bridge, Vasco da Gama Mall, Marina Parque das Nações) in addition to the proposed Housing Plan built since the beginning of Parque Expo development, to the present day.

However, we witnessed specific errors, such as the case of the Portugal Pavilion, an iconic work by Siza Vieira that has never been able to find a use and has remained closed since the end of the Exhibition.



Fig. 10 – The south door of Expo '98, currently Parque das Nações (photo by Fernando Guerra | FG+SG)

The South door located between the buildings on the south side of Parque das Nações, the urbanization, built in the wake of Expo '98, was for decades one of the industrial area's symbols that disappeared definitively after the 1998 World Exhibition. Five years earlier, when the refinery's closure had already been announced, the hypothesis that the old oil tower received the Petroleum Museum was advanced, but the initiative never got off the ground. It would end, within the scope of the regeneration process of that riverside area of the capital and, according to the website of the Lisbon City Council (CML), for being "recovered by the architects Manuel Graça Dias and Egas José Vieira, to preserve the memory of the time when the Expo '98 site was a refinery of Petroleum".

In the 22 years after the World Exhibition, little use was made of the space, and it remains closed and without public access.

The last event it hosted took place on 1st October 2016, when ACIPN - Associação Cidade Imaginada Parque das Nações, organized, in partnership with Parque Expo, a visit of its members and the media. About seventy participants observed that the Tower was safe during this visit, with only a few rust marks that needed maintenance, although the elevator was broken and vandalized.

It is this situation that the president of the Parish Council of Parque das Nações, José Moreno, wants to reverse. To *Diário de Notícias* (Banha, 2016), José Moreno confirms the news advanced by the online publication O Corvo that the municipality has received contacts from several entities that would like to boost the Galp Tower.



Fig. 11 – The south door of Expo '98, currently Parque das Nações (photo by Graça Dias + Egas Vieira, 1994-1998)

The problem, according to José Moreno, is that despite the urban management of Parque das Nações having been transferred, in December 2012, from Parque Expo to CML, the structure remains in possession of the society responsible for the design, organization, and execution of the contents and all the space, infrastructures and equipment of Expo '98, explicitly created for this purpose. The parish council's president intends that the Galp Tower also passes to the municipality's authority and that its management is delegated to the parish council he presides over. Diário de Notícias refers in his article that its journalists tried, without success, to contact Parque Expo for further clarification. At that time, José Moreno said that young entrepreneurs and publishers would like, respectively, to install design spaces and book sales kiosks and added that "the parish council itself has projects that it could develop there".

In 2018, the extinction of Parque Expo, SA, was transferred to the Municipality of Lisbon domain, under the provisions of Decree-Law No. 67/2018 of 17th August, which defines the terms and effects resulting from the extinction.

Despite the requests, this building remained closed to the public and unused. On 12th February 2018, at the Lisbon Municipal Assembly session, the CDS-PP Municipal Group proposed to the Lisbon City Council to promote a study to assess the stability of the structure by LNEC. Thus, to evaluate the possibility of resuming the use of a viewpoint at the top of the Tower, proceeding with the necessary adaptation and conservation works for this purpose; installing, in the existing spaces at the base, support spaces (ticket office, cafeteria, sanitary facilities, among others); promoting an exhibition, in the entrance area, which summarizes the structure's past; and at the same time integrating the viewpoint space in tourist routes creating an anchor in the south area of this Parish and linking it to the Parque das Nações Interpretative Centre project.

Diogo Moura justified, "The built heritage of the City, in particular, that which symbolizes a time in the eastern zone and an urban conversion, recognized as a good international example, should, as far as possible, be occupied by its people and by those who visit us, as is the case with the structure in question."

Subsequently, on 29th June 2019, the political party Os Verdes demanded clarification about the former Galp Refinery Tower's future in Parque das Nações. The Lisbon City Council's request is to follow a Municipal Assembly's recommendation that the Tower could be used as a viewpoint.

Furthermore, since that date, the future of this building has not yet been decided. Perhaps this article can underline the need to reconvert this building to allow its use, underlining the importance of the Galp Tower's memory existing south of Parque das Nações, as a living testimony of the first Portuguese refinery and the first steps of refining in Portugal - the Cabo Ruivo Refinery. Built in 1939, in Lisbon,

it was recognized by the "eternal flame," the memory of industrial space, more than a monument of industrial archaeology; it is a symbol that is part of the identity of the territory and, as such, it is crucial to defend and preserve.

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